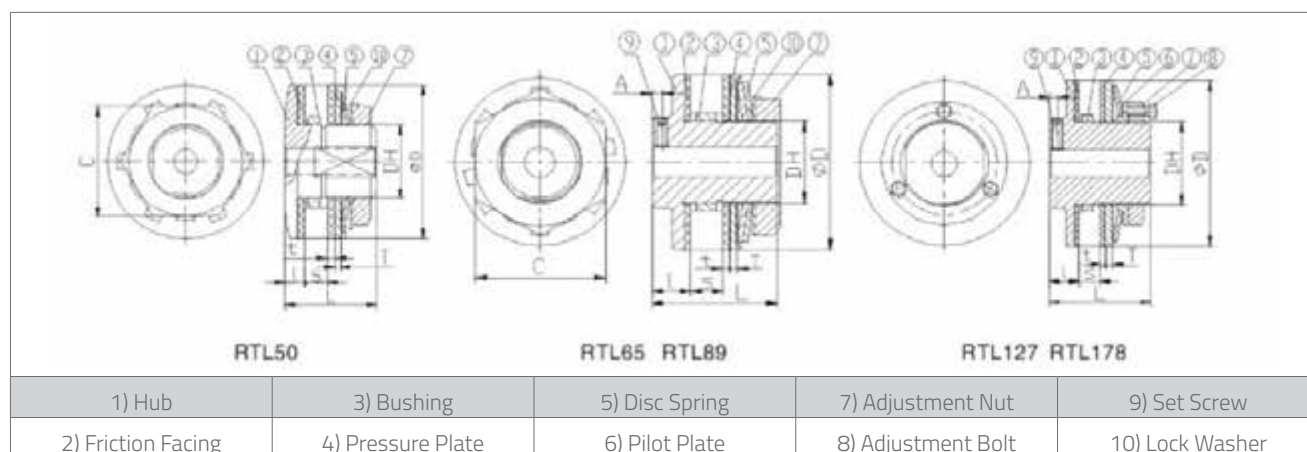The Finer Torque Limiter has been designed to protect drive systems from unnecessary overload. When too much torque is transmitted through a drive, the Torque Limiter automatically slips on its shaft when a predetermined torque level is reached.

This device is suitable in situations where there is excessive and unpredictable shock loads, overloads or machine jams. When the problem in the system is overcome or removed, the Torque Limiter automatically re-engages, unlike other devices such as those with shear pin mechanisms, which have to be manually reset.

Torque Limiters not only prevent damage to drive systems but also eliminates unnecessary downtime due to system resets.

The Torque Limiter utilizes spring loaded friction surfaces, the slip torque is preset by the adjustment of the spring force which is as simple tightening or loosening the appropriate nut or bolt.



RTL50    RTL65  RTL89    RTL127 RTL178

| 1) Hub | 3) Bushing | 5) Disc Spring | 7) Adjustment Nut | 9) Set Screw |
|---|---|---|---|---|
| 2) Friction Facing | 4) Pressure Plate | 6) Pilot Plate | 8) Adjustment Bolt | 10) Lock Washer |

| Size | Torque Range (kgf~m) | Plain Bore | Max Bore | Bush Length | OD of Bush | | Bore for Centre Member | | D | DH | L | I | T | t | S (Max) | A | C | Adjust. Nut | Adjust. Bolt | Set Screw | (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RTL50-1 | 0.3 ~ 1.0 | 8 | 14 | 3.8 6 | 30 | -0.020 -0.041 | 30 | +0.033 0 | 50 | 24 | 29 | 6.5 | 1.6 | 2.5 | 7 | – | 36 | M24 P1.0 | – | – | 0.248 |
| RTL50-2 | 0.7 ~ 2.0 | | | | | | | | | | | | | | | | | | | | 0.256 |
| RTL65-1 | 0.7 ~ 2.8 | 10 | 22 | 6 8 | 41 | -0.025 -0.050 | 41 | +0.039 0 | 65 | 35 | 48 | 16 | 4 | 3.2 | 9 | 4 | 50 | M35 P1.5 | – | M5 | 0.721 |
| RTL65-2 | 1.4 ~ 5.5 | | | | | | | | | | | | | | | | | | | | 0.739 |
| RTL89-1 | 2.0 ~ 7.6 | 17 | 25 | 6 8 9.5 14.5 | 49 | -0.025 -0.050 | 49 | +0.039 0 | 89 | 42 | 62 | 19 | 4 | 3.2 | 16 | 5 | 65 | M42 P1.5 | – | M6 | 2.417 |
| RTL89-2 | 3.5 ~ 15.2 | | | | | | | | | | | | | | | | | | | | 2.477 |
| RTL127-1 | 4.8 ~ 21.4 | 20 | 42 | 6 8 9.5 14.5 | 74 | -0.030 -0.060 | 74 | +0.046 0 | 127 | 65 | 76 | 22 | 6 | 3.2 | 16 | 6 | – | M65 P1.5 | M8 P1.0 3pcs | M8 | 3.692 |
| RTL127-2 | 9.0 ~ 42.9 | | | | | | | | | | | | | | | | | | | | 3.858 |
| RTL178-1 | 11.8 ~ 58.1 | 30 | 64 | 8 9.5 14.5 17 22 | 105 | -0.036 -0.071 | 105 | +0.054 0 | 178 | 95 | 98 | 24 | 7 | 3.2 | 29 | 6.5 | – | M95 P1.5 | M10 P1.25 3pcs | M10 | 9.033 |
| RTL178-2 | 22.8 ~ 111 | | | | | | | | | | | | | | | | | | | | 9.436 |

## Selection

Determine the required slip torque from the loading conditions or from the design strength of the machine. If the loading conditions of the machine are unknown, set the required slip torque of the torque limiter to 1.5~2 times the torque that the motor produces on the shaft where the torque limiter is mounted.

Select a Torque Limiter that has enough torque range and bore range.

Determine the proper bushing length from the thickness of the centre member to be inserted between the friction facings. Always choose the largest bushing which does not exceed the width of the centre member, shown as S Max in the dimension table.

## Centre Member

The centre member should be machined on its rubbing surface to obtain the rated torque and be flat, parallel and square with

the bore and free from rust, scale and oil. Surface finish recommended is Ra1.6. Ithe centre member is not in accordance with these specifications, the slip torque will be erratic.

The Max. Bore othe centre member is listed below. Also shown is the Min. number osprocket teeth to be used and the bushing length.

| Size | Bore of Centre Member (mm) | 9.525-06B | | 12.7-08B | | 15.875-10B | | 19.05-12B | | 25.4-16B | | 31.75-20B | | 38.1-24B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Spr. Min. Teeth | Bush Length (mm) | Spr. Min. Teeth | Bush Length (mm) | Spr. Min. Teeth | Bush Length (mm) | Spr. Min. Teeth | Bush Length (mm) | Spr. Min. Teeth | Bush Length (mm) | Spr. Min. Teeth | Bush Length (mm) | Spr. Min. Teeth | Bush Length (mm) |
| RTL50 | 30 | 20 | 3.8 | 16 | 6 | - | - | - | - | - | - | - | - | - | - |
| RTL65 | 41 | - | - | 20 | 6 | 17 | 8 | - | - | - | - | - | - | - | - |
| RTL89 | 49 | - | - | 26 | 6 | 21 | 8 | 18 | 9.5 | 15 | 14.5 | - | - | - | - |
| RTL127 | 74 | - | - | 35 | 6 | 29 | 8 | 25 | 9.5 | 19 | 14.5 | - | - | - | - |
| RTL178 | 105 | - | - | - | - | 39 | 8 | 33 | 9.5 | 26 | 14.5 | 21 | 17 | 18 | 22 |

## Torque Settings

The torque setting othe Torque Limiter is manipulated by tightening or loosening the adjustment nut and/or the adjustment bolts. RTL 50 – RTL 89 use an adjustment nut, RTL 127 – RTL 178 use adjustment bolts.

The torque setting is adjusted after the Torque Limiter is mounted on the shaft, once the Torque Limiter is mounted:

**RTL 50 – RTL 89**

First, rotate the adjustment nut tightly by hand so that the disk spring fits the plate. Then tentatively tighten the nut by about 60 degrees with a wrench.

**RTL 127 – RTL 178**

First, rotate the nut for fixing the disk spring to the plate, and then tighten each adjustment bolt by about 60 degrees. Then, ithe Torque Limiter slips under normal loading conditions, tighten the bolts gradually until the Torque Limiter stops slipping. Always tighten or loosen the bolts evenly. You may have to make several adjustments to find the appropriate setting for the machine. For your guidance the below chart shows the relation between the effective rotated angle and preset torque.

For precise torque setting, run-in othe Torque Limiter is recommended, eg: 500 revolution at 50~60rpm with a rotated angle o45 degrees othe adjustment bolts.